

reactor column at an elevated temperature and pressure sufficient to effect esterification of the ethanol and isopropyl alcohol to form a mixture of ethyl acetate and isopropyl acetate;

- (b) removing the mixture of ethyl acetate and isopropyl acetate from the reactor column as an overhead stream;
- (c) condensing the overhead stream to form a liquid reaction product mixture;
- (d) separating the liquid reaction product mixture into an organic phase comprising ethyl acetate and isopropyl acetate and an aqueous phase comprising primarily water;
- (e) directing the organic phase to a first distillation column and removing a stream comprising ethyl acetate and isopropyl acetate from the first distillation column;
- (f) directing the stream from the first distillation column to a second distillation column and removing an ethyl acetate product stream from the top of the second distillation column and a stream comprising isopropyl acetate from the bottom of the second distillation column; and
- (g) directing the stream comprising isopropyl acetate to a third distillation column and removing an isopropyl acetate product stream from the bottom of the third distillation column.

12. (currently presented) The process of claim 11 wherein the stream comprising ethanol and isopropyl alcohol is subjected to azeotropic distillation to produce a purified stream comprised of ethanol and isopropyl alcohol and comprising less than 300 ppm of an alcohol having a boiling point greater than the boiling point of isopropyl alcohol.

13. (currently presented) The process of claim 12 wherein the stream comprising ethanol and isopropyl alcohol is derived from a Fischer Tropsch alcohol mixture.

14. (currently presented) The process of claim 11 wherein the stream comprising ethanol and isopropyl alcohol is a Fischer Tropsch alcohol mixture and the stream is not purified prior to use.

15. (currently presented) The process of claim 14 wherein esters other than ethyl acetate and isopropyl acetate are produced in the reactor column and are separated from ethyl acetate and isopropyl acetate during recovery of ethyl acetate and isopropyl acetate.

16. (currently presented) The process of claim 15 wherein the stream comprising ethanol and isopropyl alcohol comprises from about 10% to about 90% ethanol and from about 10% to about 90% isopropyl alcohol.

17. (currently presented) The process of claim 15 wherein the stream comprising ethanol and isopropyl alcohol comprises from about 60% to about 80% ethanol and from about 20% to about 40% isopropyl alcohol.

18. (currently presented) The process of claim 14 wherein each of the ethyl acetate and the isopropyl acetate is recovered at greater than about 99.5% purity.

19. (currently presented) The process of 14 wherein each of the ethyl acetate and the isopropyl acetate is recovered at a purity of greater than 99.7%.

REMARKS

Following the amendments set forth above, new claims 11-19 will be pending in this Application.

Responsive to paragraph 1 of the Office Action, the application was reviewed for errors. No errors were detected.

Claim Rejections

On pages 2 and 3 of the Office Action, all original claims 1-10 were rejected under 35 U.S.C. Section 103 as being obvious over PCT application WO 98/45652 to Van Acker in view of PCT application WO 98/25876 to Young. The rejection states that Van Acker discloses the co-production of ethyl acetate and butyl acetate by reacting the corresponding alcohols with acetic acid, in the liquid phase, in the presence of an acidic catalyst. The Office Action concludes the only difference between Van Acker and the rejected claims is that the claims recite the production of ethyl acetate and isopropyl acetate rather than ethyl acetate and butyl acetate. Young is cited as disclosing mixtures containing ethanol and isopropanol derived from Fisher Tropsch processes. The Office Action concludes it would be obvious to use the alcohol pairs disclosed by Young in the co-production process of Van Acker to co-produce ethyl acetate and isopropyl acetate.

New submitted claims 11-19 more clearly define the present invention. The claimed invention is not simply the co-production of ester from mixed alcohol streams. The invention is a process for co-producing esters and recovering in high purity from mixed alcohol streams that may be impurity. Important features of the recited processes are removal of the ester products in the overhead from the reactor and subsequent ester